# Baryonic contributions to the dilepton spectra in relativistic heavy ion collisions[*]

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We calculate dilepton production from baryon resonances with a special emphasis on the $N(1520)$ resonance. This resonance, which couples strongly to the $\rho$-meson [1,2], is believed to be the strongest baryonic source of dileptons trough its Dalitz-decay channel. We have calculated the Dalitz decay rate and width of the $N(1520)$ using the model and parameters of [3], which is based on an analysis of pion photoproduction data. We have compared several parameterizations based on relativistic dynamics and also the nonrelativistic limit. The latter is commonly used in calculations for the in medium $\rho$-meson spectral function [1,2].
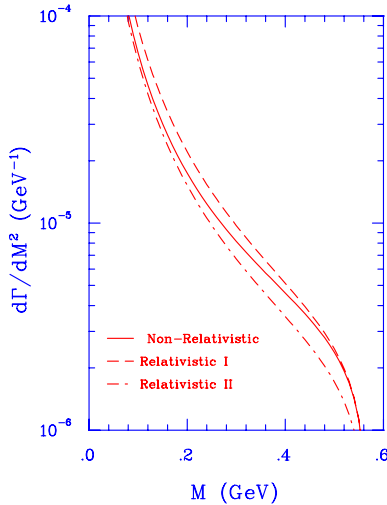
We find rather small differences between the different approaches as illustrated in 1. For the transport results shown below we adopted the nonrelativistic formula. The transport results are shown together with the preliminary data by the CERES collaboration [4] in fig. 2. We find the contribution due to the N(1520) (black line) to be negligible. This is also the case for the collisions at lower energy, 40 GeV/A [5].
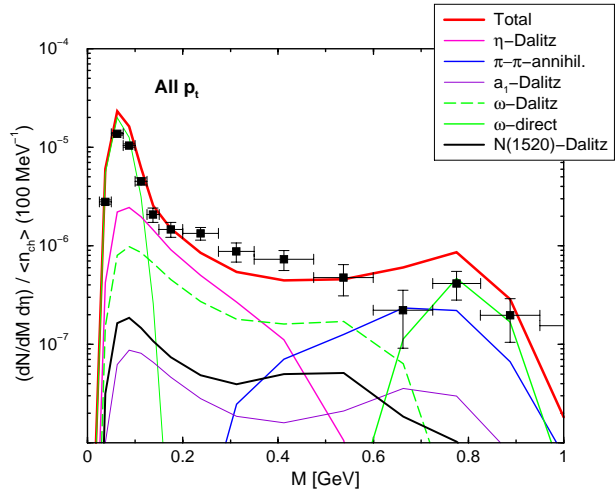


Figure 2: Dilepton spectrum for Dalitz Pb+Au collision at 160 GeV/A. Data are from [4]



Figure 1: Dalitz decay width of the N(1520) based on a relativistic and nonrelativistic descriptions.

[1] W. Peters et al, Nucl. Phys. A632 (1998) 109.

[2] R. Rapp et al. Nucl. Phys. A617 (1997) 472.

[3] T. Feuster and U. Mosel, Nucl. Phys. A612, (1997) 375.

[4] B. Lenkeit, Proc. Int. Conf. on Ultra-Relativistic Nucleus-Nucleus Collisions, Torino, 1999; Nucl. Phys. A661 (1999)

[5] V. Koch et al, Proc. of the International Workshop XXVIII on Gross Properties of Nuclei and Nuclear Excitations, Hirschegg, Jan. 2000.